

## Claims

1. A method for eliminating silicon islands and pinholes in the buried oxide layer  
5 of SOI material formed by using SIMOX method, comprising the steps of:

(1) implanting silicon ion, germanium ion, inert gas ion or oxygen ion at a dose  
and an energy into SOI material containing top silicon layer and buried oxide layer at  
a temperature below 100°C, to form an amorphous region including said buried  
oxide layer and to keep the original structure in vicinity of said major surface;

10 (2) annealing aforesaid SOI material at a temperature in the range from 900°C  
to 1250°C to restore structure of every layer and to eliminate silicon islands and  
pinholes in said buried oxide layer.

2. The method of claim 1 wherein the said energy is in the range from 30keV to  
15 5MeV.

3. The method of claim 1 wherein the said dose is in the range from  $1 \times 10^{13} \text{ cm}^{-2}$   
to  $5 \times 10^{16} \text{ cm}^{-2}$ .

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